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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/348,169	07/07/1999	YASUHARU YOSHIDA	FQ5-404	4848
21254	7590	10/24/2003	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			LY, NGHI H	
			ART UNIT	PAPER NUMBER
			2686	21

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/348,169

Applicant(s)

YOSHIDA, YASUHARU

Examiner

Nghi H. Ly

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40 and 41 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8, 13, 14, 20-24 and 30-35 is/are rejected.
- 7) ☒ Claim(s) 5-7, 9-12, 15-19, 25-29 and 36-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 8, 13, 14, 20, 21, 30, 31, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Amico et al (US 5,127,100) in view of D'Amico et al (US 5,159,593) and further in view of Gitlits (US 5,859,841).

Regarding claims 1, 4, 13 and 35, D'Amico et al (US 5,127,100) teaches an automobile communications method for an onboard mobile station in a plurality of radio zones (see abstract) which are consecutively arranged along a road (see fig.1 see cells 22 to 26), comprising: providing each of the radio zones with a plurality of communication frequencies (see column 3, lines 25-26) and switching between the plurality of communication frequencies using a time division scheme (see column 1, lines 17-19 and column 6, lines 24-26, D'Amico et al US 5,127,100 inherently teaches switching between the plurality of communication frequencies using a time division scheme, see column 3, lines 45-47 which clearly states "They can be dynamically

changed under the control of central controller 30 based upon communication requirements. The frequency, bit rate and/or time slots of one or more cells can be independently controlled”), and a different time slot is allocated for adjacent radio zones (see column 3, lines 36-42) for each of the plurality of communication frequencies (see column 3, lines 25-26),

D’Amico et al (US 5,127,100) does not specifically disclose switching a time slot allocated to the on-board mobile station to continuously communicate with the on-board mobile station across the plurality of radio zones.

D’Amico et al (US 5,159,593) teaches switching a time slot allocated to the on-board mobile station to continuously communicate with the on-board mobile station across the plurality of radio zones (see column 4 lines 21-24).

Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention was made to provide the above teaching of D’Amico et al (US 5,159,593) into the system of D’Amico et al (US 5,127,100) in order to reduce channel usage and save bandwidth by each base station.

The combination of D’Amico (US 5,127,100) and D’Amico (US 5,159,593) does not specifically disclose switching between the plurality of communication frequencies within each of the radio zones using a time division scheme.

Gitlits teaches switching between the plurality of communication frequencies within each of the radio zones (see column 1, lines 47-59) using a time division scheme (see column 6, lines 34-50).

Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention was made to provide the above teaching of Gitlits into the system of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) in order to reduce co-channel interference.

Regarding claims 2, 3 and 14, the combination of D'Amico et al (US 5,127,100), D'Amico et al (US 5,159,593) and Gitlits further teaches the time slot used for communication with the on-board mobile station is switched in such a manner that communication with the on-board mobile station (see D'Amico et al (US 5,159,593) column 4, lines 21-24) is continuously performed at one of the plurality of communication frequencies over the plurality of radio zones (see D'Amico et al (US 5,127,100), column 3, lines 36-42 or column 6, lines 24-26).

Regarding claims 8 and 31, D'Amico et al (US 5,127,100) further teaches each of the predetermined communication frequencies is used for both transmission and reception to perform communication with the on-board mobile station (see column 6 lines 22-24) according to TDMA/TDD scheme (see column 3, lines 62-65).

Regarding claims 20 and 30, D'Amico et al (US 5,127,100) further teaches the on-board mobile station comprises frequency-in-use regenerator (see fig.2 box 60) for regenerating the one of the plurality of communication frequencies from a signal received from a fixed station which forms a radio zone for communication (see column 3, lines 25-26), and a communication controller controlling communication with the fixed station using the allocated time slot at the one of the plurality of communication frequencies (see column 6, lines 19-28).

Regarding claim 21, D'Amico et al (US 5,127,100) further teaches each of the plurality of communication frequencies is used for transmission and reception (see D'Amico et al (US 5,127,100) column 3, lines 25-26), and the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme (see column 3, lines 62-65).

Regarding claim 34, D'Amico et al (US 5,127,100) further teaches the predetermined conversion of the converter is the same as a predetermined conversion for generating a reception local signal from a transmission frequency at each fixed station (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

3. Claims 22-24, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Amico et al (US 5,127,100) in view of D'Amico et al (US 5,159,593) and further in view of Gitlits (US 5,859,841) and Janesch et al (US 6,072,842).

Regarding claims 22, 23, 32 and 33, the combination of D'Amico et al (US 5,127,100), D'Amico et al (US 5,159,593) and Gitlits teaches each of the plurality of communication frequencies is used for transmission and reception frequencies (see D'Amico et al (US 5,127,100), column 3, lines 25-25) and wherein the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme (see D'Amico et al (US 5,127,100), column 2 lines 63-65) using the oscillation frequency as a transmission local frequency (see rejection of claims 8 and 16 above) and frequency-in-use regenerator (see D'Amico et al (US 5,127,100), fig.2 box 60).

The combination of D'Amico et al (US 5,127,100), D'Amico et al (US 5,159,593) and Gitlits does not specifically disclose the regenerator comprises: a demodulator for demodulating the received signal and a phase controller for performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization.

Janesch teaches the regenerator comprises: a demodulator for demodulating the received signal (see fig.1, box 196) and a phase controller for performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization (see fig.1, 165 and see column 5, lines 35-38). Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention was made to provide the above teaching of Janesch into the system of D'Amico et al (US 5,159,593), D'Amico et al (US 5,127,100) and Gitlits in order to provide a carrier-recovery loop with a reduced acquisition time (see Janesch, column 2, lines 22-23).

Regarding claim 24, D'Amico et al (US 5,127,100) further teaches the predetermined conversion of the converter is the same as a predetermined conversion for generating a reception local signal from a transmission frequency at each fixed station (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

***Allowable Subject Matter***

4. Claims 40 and 41 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 40, D'Amico et al (US 5,127,100) teaches an automobile communications method between an on-board mobile station and a fixed station system in a plurality of radio zones which are consecutively arranged along a road (see fig.1, cells 22 to 26), comprising: providing each of the radio zones with a plurality of communication frequencies (see column 3, lines 25-26), controlling a communication frequency used in each of the radio zones using a time division scheme such that simultaneous transmission at a same communication frequency is not permitted in adjoining radio zones (see column 1, lines 17-19 and column 6, lines 24-26) and different time slots are allocated for communications at a same communication frequency in adjoining radio zones (see column 3, lines 36-42) and continuously communicating with the on-board mobile station at a same communication frequency over the radio zones (also see column 3, lines 36-42).

D'Amico et al (US 5,127,100) fails to teach a predetermined number  $N$  ( $N$  is an integer equal to or greater than 2) of time slots are determined in one period in each of the radio zones, wherein one time slot is assigned to a single on-board mobile station and  $M$  ( $M$  is an integer equal to or greater than 2) communication frequencies are sequentially switched from one to another at a timing of every  $N/M$  time slot.

Dependent claim 41 is allowable for the same reason.



Art Unit: 2686

5. Claims 5-7, 9-12, 15-19, 25-29 and 36-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 5, 9, 10, 15, 25 and 36-39, the combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) teaches the automobile communication method according to claim 1, 4 and 13. The combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) fails to teach the plurality of communication frequencies in each radio zone are generated from a single reference frequency in accordance with a predetermined conversion to be in a frequency-coherence state.

Regarding claim 6, the combination of D'Amico et al (US 5,127,100), D'Amico et al (US 5,159,593) and Gitlits teaches the automobile communication method according to claim 4. The combination of D'Amico et al (US 5,127,100), D'Amico et al (US 5,159,593) and Gitlits fails to teach a predetermined number N (N is an integer equal to or greater than 2) of time slots are determined in one period in each of the radio zones, wherein one time slot is assigned to a single on-board mobile station and M (M is an integer equal to or greater than 2) predetermined communication frequencies are sequentially switched from one to another at a timing of every N/M time slot.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-4, 8, 13, 14, 20-24 and 30-35 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (703) 605-5164.


The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Nghi H. Ly

  
10/07/03

  
**CHARLES APPIAH**  
**PRIMARY EXAMINER**